

Monitoring and Controls (MCS)

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- information resources
- control room layout
- *iFIX* overview
- basic *iFIX* operation
- monitoring shift responsibilities



MCS: Information Resources

- Monitoring “Ace Page”

Monitoring Ace Information

For Run 2

Don't see what you're looking for?
Maybe it's on the **DAQ Ace page**.
Or the **Consumer Operator Page**

Know your ACE

Monitoring



iFix, Detectors info/Recovery



Emergency Response
Procedures (ERPs) Safety
Procedures



Monitoring the Silicon Detectors
Monitoring Aces Must Read



VoltMan Web Page (plots and
help)
Power Supply Monitoring
Guide (PDF)



Accelerator Network (ACNET)



Muon High Voltage



ACNET Plots for Aces



Monitoring Ace Checklist
(out-of-date)



Manual Reset of CLC/Plug Trigger
Inhibit



Notices and Ace Meetings

Resources



Palm Pilot resources for ACEs



Run 2 CDF acronym dictionary



RunList via DB query tool



CalibrationList via DB query tool



Index of DAQ and calibration error
log files



How to use CDF collision hall camera
system

MCS: Information Resources

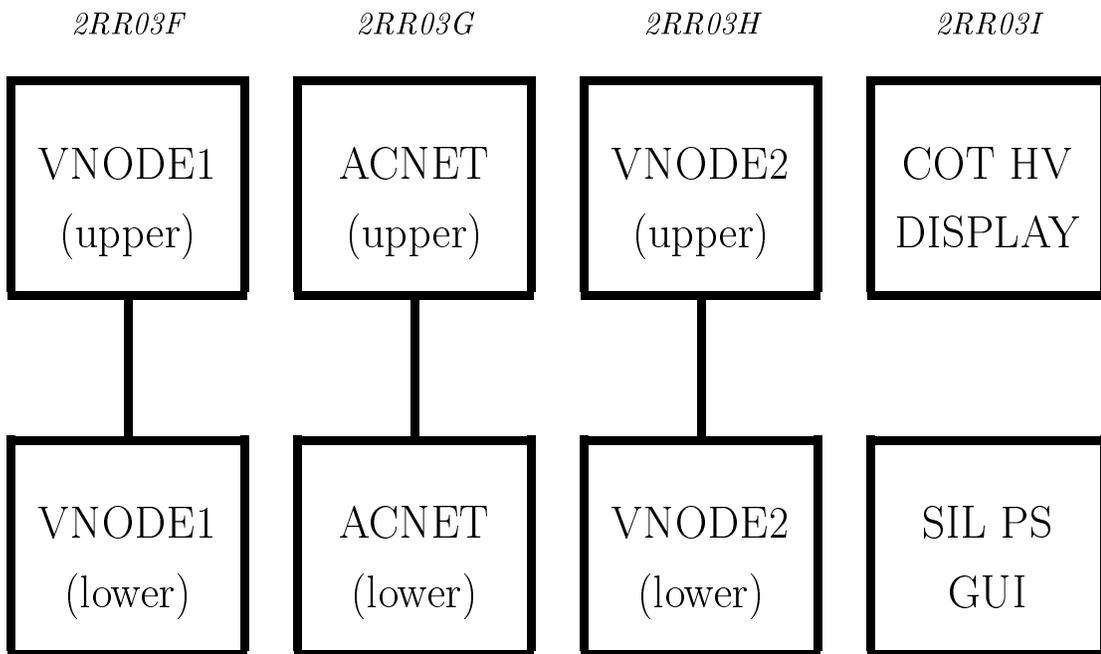
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- “Monitoring and Control Systems” documentation page
 - links to MCS homepage and tutorials
 - online displays of *iFIX* pages
 - documentation for each detector sub-system, including:
 - * tutorials
 - * shift instructions
 - * recovery procedures

The screenshot shows a Netscape browser window titled "Netscape: CDF Hardware Monitoring Documentation and Recovery procedures". The address bar shows the URL "http://www-b0.fnal.gov:8000/mcs/mondoc.html". The main content area contains a table of links for various detector sub-systems, organized into five rows and five columns. The table is as follows:

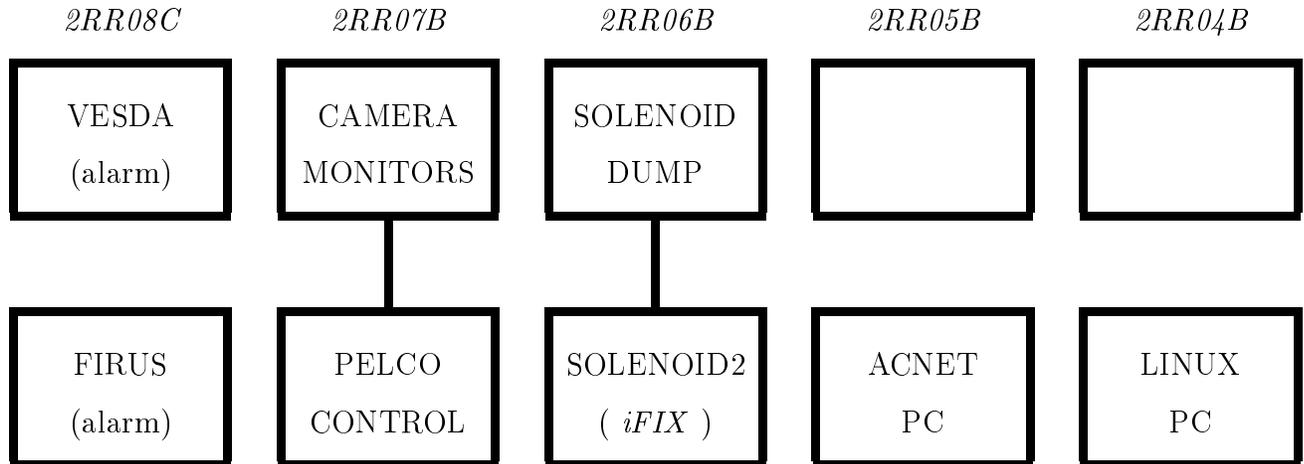
<i>CDF iFix Slow</i>	<i>Controls (MCS)</i>	<i>ACNET - Beam</i>	<i>Utilities + Safety</i>	<i>DAQ, Misc</i>
Tutorial - Homepage Instructions to Shift Recovery Procedure	Web-Server Pics Access Security	Tutorial Shot Setup - RadMon	Monitoring Ace Page	DAQ Ace info Operations page
Legend: READY , Preliminary , <i>Not yet available</i> In case of problems with systems that do not yet have recovery procedure available, Please click here for Expert call-in phone lists .				
<i>COT HV</i>	<i>MUONS - HV</i>	<i>CES-CCR-CPR</i>	<i>CEM,C/WHA,GAM</i>	<i>Trigger Inhibit</i>
Instructions to Shift	Instructions to Shift Trip Recovery	Intruction to Shift	Tutorial Instructions to Shift Recovery Procedure	Design Notes
<i>SVX,ISL,L00</i>	<i>CSX, CSP</i>	<i>TOF</i>	<i>PEM - PHA - PSH</i>	<i>xxx</i>
Instructions to Shift Radiation Mon Cooling Mon Bias Voltage		Shift Instructions	Not Available	Not Available
<i>xxx</i>	<i>TRU cot util</i>	<i>CLC</i>	<i>PTM plug temp</i>	<i>PSM power sup</i>
Not Available	Not Available	Instructions to Shift	Instruction, Recover	See the Alarm Help Section on the VoltMan page for PSM trips.
<i>PC BACKUP</i>	<i>xxx</i>	<i>Template</i>	<i>xxx</i>	<i>xxx</i>
Procedure What items Other Info	Not Available	Tutorial Instructions to Shift Recovery Procedure	Not Available	

MCS: Control Room (West)



- VNODE1: (*iFIX* node)
 - for global summary pages, voice alarms
- ACNET: (ACcelerator NET)
 - accelerator monitoring (beam current, luminosity, losses)
- VNODE2: (*iFIX* node)
 - for general monitoring use
- COT HV DISPLAY: (read only)
 - displays HV/current for 25 wires of superlayer
 - “Trip Log” records ramping and SL/wire info of trips
- SIL PS GUI: (expert only)
 - Silicon power supply monitoring/control

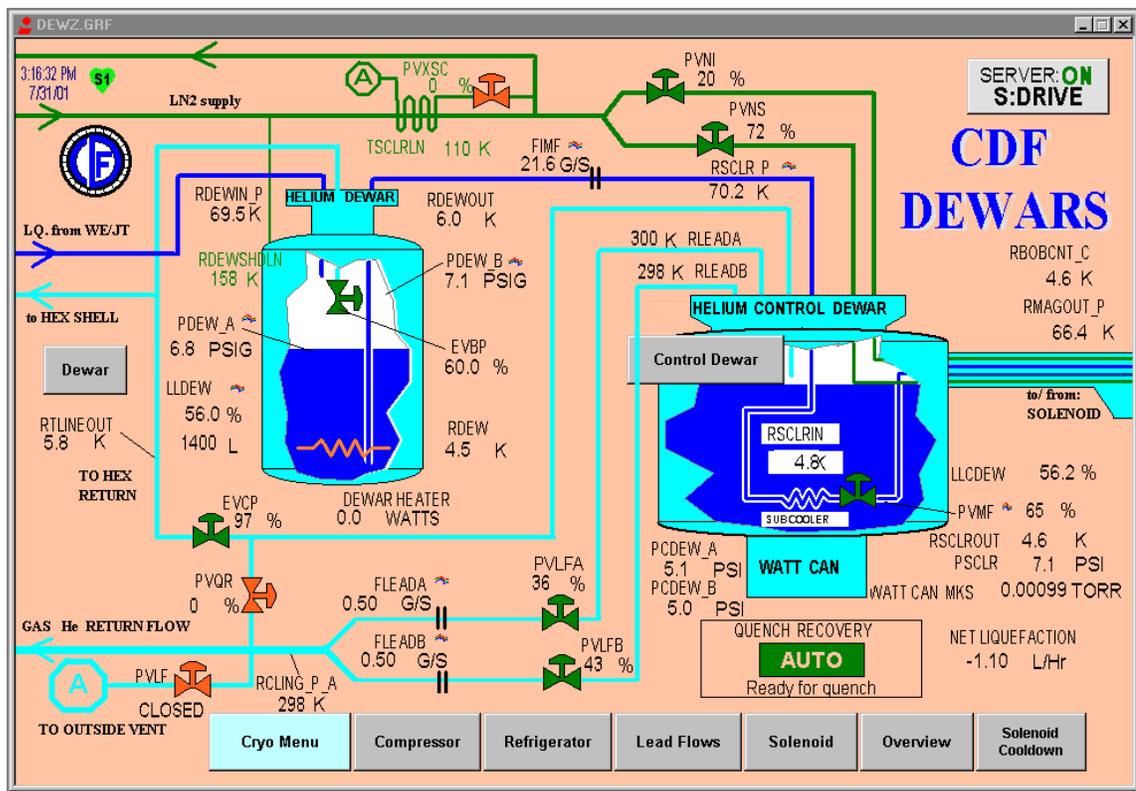
MCS: Control Room (South)



- VESDA: (collision hall smoke detector)
 - may show 0.1-0.2 during accesses
 - 0.4/0.7 generates FIRUS TROUBLE/EMERGENCY
- FIRUS: (fire alarm system display)
 - TROUBLE warns of pre-alarm condition
 - EMERGENCY describes real alarm, follow ERP
- SOLENOID CRASH:
 - indicators, crash buttons for slow/fast dump
- SOLENOID2: (*iFIX* node)
 - dedicated node for magnet control/monitoring

MCS: *iFIX* Overview

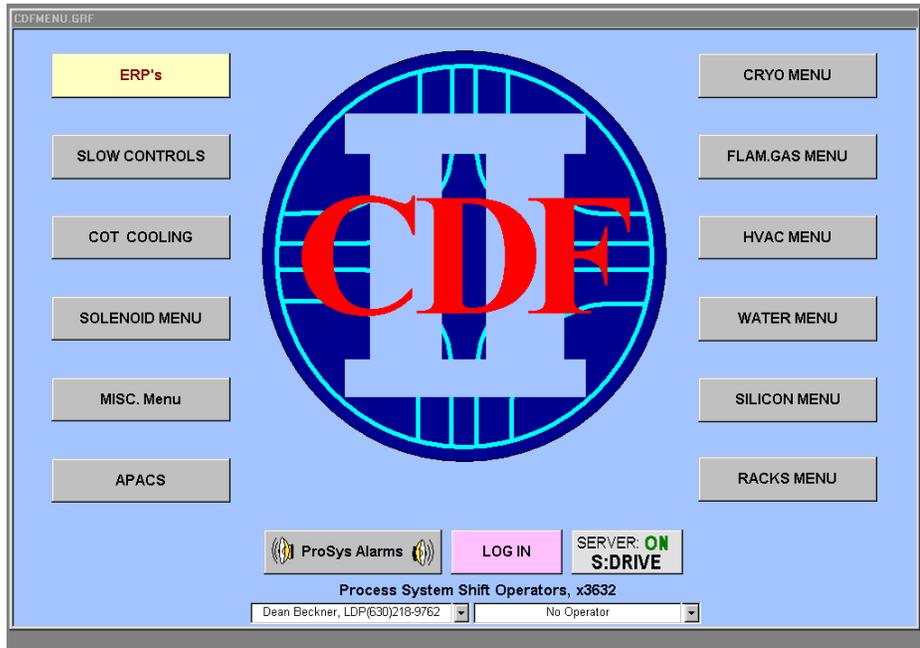
- *iFIX* (Fully Integrated Control System, by “Intellution”):
 - allows PC to control/monitor equipment with GUI’s
 - CDF control room uses the following PC’s:
 - * VNODE1 - summary pages
 - * VNODE2 - general use
 - * SOLENOID2 - magnet monitoring
- *iFIX* allows people on shift to:
 - monitor detector and support systems
 - perform basic (non-expert) control during data taking
 - alert experts when exceptions occur
- example *iFIX* page (from *CRYO MENU*):



MCS: *iFIX* Overview

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- *iFIX* pages have *web*-like structure of sub-menus and pages all pointing to *MAIN* menu:



link icons

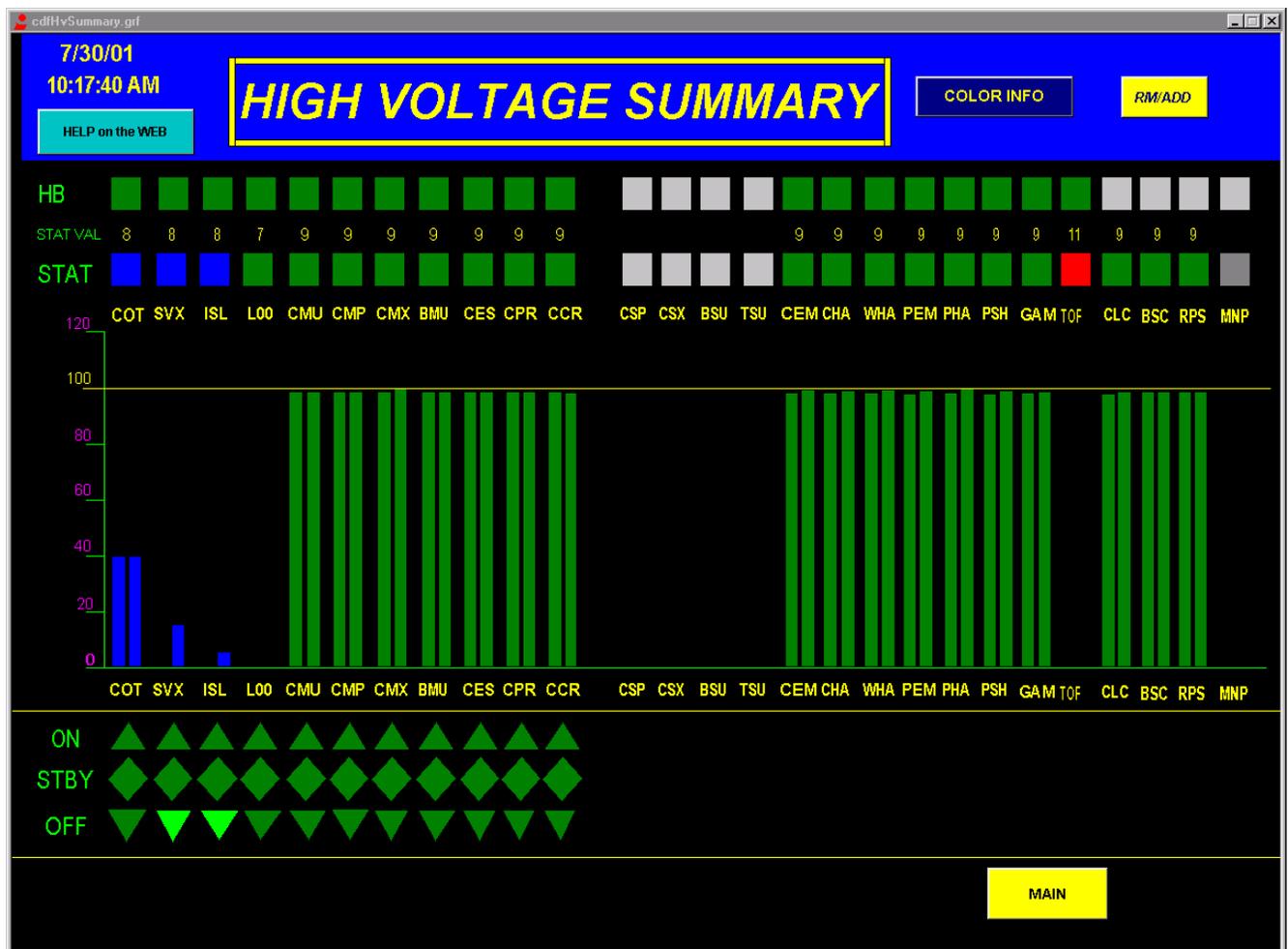


- shows cryo tech on shift ($\times 3632$)
- displays *iFIX* status:
 - * *SERVER* should be *ON*
 - * *DRIVE* should be *S* (main cryo PC), as opposed to *C* (for local PC drive)
- can restart *iFIX* from “Start” menu:
 - Start / Programs / *iFIX* / Int. Dyn. WorkSpace
- log on with two possible accounts:
 - * *PUBLIC* (no password) for general monitoring
 - * *ACE* (see J.C.Yun) for resetting HV, etc.

MCS: Basic *iFIX* Operation

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- *HV SUMMARY* displays the high voltage status of each detector, and allows for control of specific systems:
 - *HB* row shows heartbeat status (green is OK, purple is bad)
 - *STAT* gives status condition (green is OK, blue is STANDBY, red is TRIP)
 - double-bar histogram shows percentage HV for minimum and maximum out-of-range signals
 - “arrow” controls turn HV on, off, or to standby



MCS: Basic *iFIX* Operation

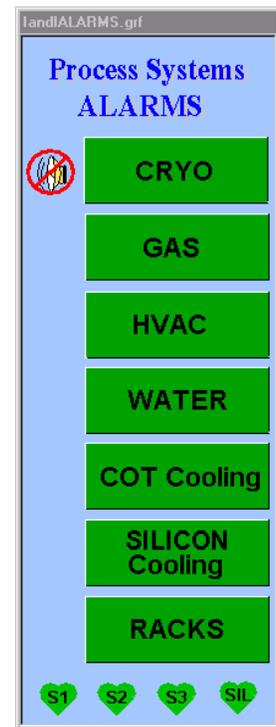
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- *Process System ALARMS* summarizes the status of detector support systems:

- global button for each subsystem (green is OK, red is ALARM)
- indicator left of global button signifies that alarm is silenced
- heartbeat indicators for four cryo area *iFIX* nodes (blinking)

- if there is an alarm:

- call cryo tech (×3632) to confirm
- click global button to open summary page and determine cause, for example:

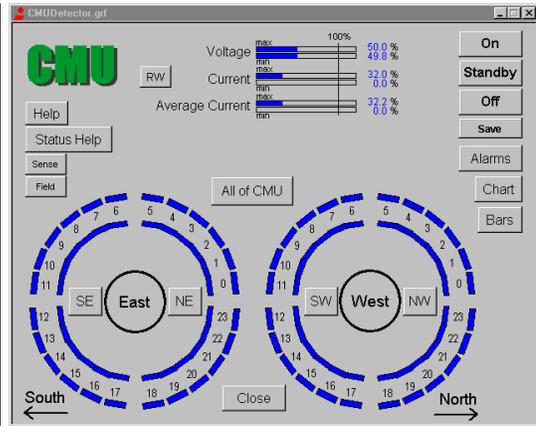
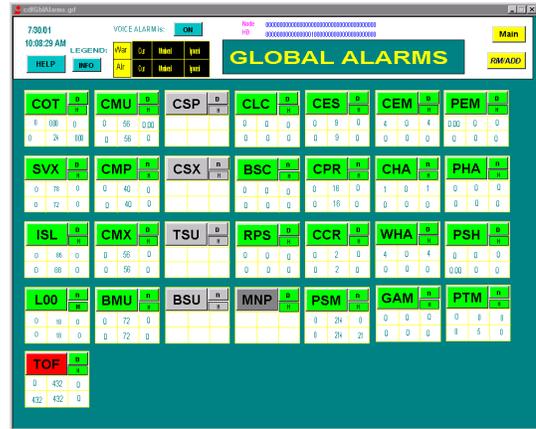


CRYO ALARMS						
DEVICE	DESCRIPTION	LO LIMIT	CURRENT VALUE	HI LIMIT	Audible Alarm	
COMPRESSOR						
PCPDIS	Discharge of Purifier Skid	200.0	279.9 psig	320.0	🔊	
PCPSUC	Compressor Suction Pressure	0.25	1.00 psig	10.00	🔊	
CMP-CON	Compressor On Status		OK		🔊	
DEWARs						
FLEADA	Flow Rate Lead A <i>Run Mode</i>	0.40	0.50 g/s		🔊	
FLEADB	Flow Rate Lead B <i>Run Mode</i>	0.40	0.50 g/s		🔊	
LLCDEW	Control Dewar Superconducting LL	32.0	56.16 %		🔊	
LLDEW	LHe Storage Dewar Level	23.0	56.04 %		🔊	
VWCAN-MKS	Watt Can MKS		0.001 torr	0.007	🔊	
RMF	Helium Flow Into Magnet	12.0	21.96 g/s		🔊	
MAGNET						
RBOCNT-C	Coil Bobbin Center Temp		4.6 F	13.00	🔊	
VACUUMS						
VCDEW	Control Dewar Vacuum Pirani		0.00 torr	0.019	🔊	
ADSORBER						
LL-ADSBR	Adsorber N2 Level	50.0	80.11 %		🔊	
REFRIGERATOR						
WE-XS-ON	Wet Engine Status		Engine ON	OK	🔊	
NDE-XS-ON	North Dry Engine Status		Engine ON	OK	🔊	
EDE-XS-ON	East Dry Engine Status		Engine OFF	OK	🔊	

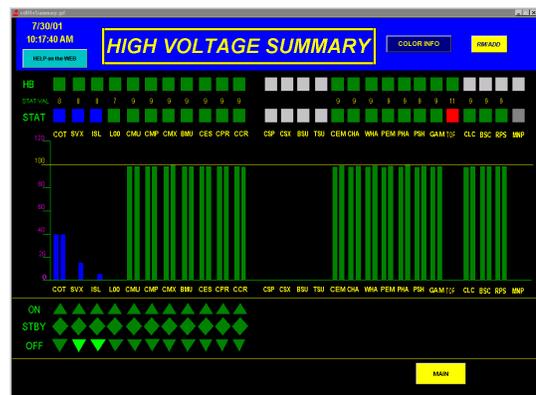
MCS: Basic *iFIX* Operation

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- as an example, if the CMU trips:
 - go to *GLOBAL ALARMS* and click *CMU* to bring up alarm history (record in e-log)
 - from the *D* button, open CMU HV control GUI to reset specific channels



- HV trips can also be reset from *HV SUMMARY* by clicking the *ON* arrow
- *HV SUMMARY* should be used to place detectors on standby for end-of-store, beam losses, etc.



MCS: Shift Responsibilities

- write list of all silenced alarms or other exceptions in e-log at the beginning of shift
- continually monitor VESDA, FIRUS, and LED status board in the control room for alarms or trouble (refer to “Monitoring Ace Knowledge”)
- beginning/end of store:
 - use “HV Summary” to turn ON/OFF/STBY detectors
- detector HV trips:
 - use “Global Alarms” to determine source
 - consult MCS Web Page for specific instructions
 - use “HV Summary” to reset or page expert
- lost heartbeat (purple):
 - notify system experts
- Process System Alarms:
 - click on system button to determine cause
 - check with cryo techs for instructions
- *iFIX* logged out or “unavailable”:
 - click on Start/Programs/*iFIX*/Login
 - logout of *ACE* account, log back in
- *iFIX* crashes: (page Ops Manager and experts)
 - J.C. Yun, 722-7589
 - John Yoh, 840-4774